

Docket No. F-8110

Ser. No. 10/783,447

AMENDMENTS TO THE CLAIMS:

Please replace the claims with the claims provided in the listing below wherein status, amendments, additions and cancellations are indicated.

1. (Currently Amended) A vehicle-use bearing apparatus comprising:

a hub wheel formed of steel material to which a wheel is mounted;

a rolling bearing mounted to an outer periphery of said hub wheel, said rolling bearing including a single first outer ring member having two rows of raceways adjacent to each other in an axial direction, an inner ring member on a vehicle outer side and having a single raceway which pairs up with said raceway in said first outer ring member on said vehicle outer side, an inner ring member on a vehicle inner side and having a single raceway which pairs up with said raceway in said first outer ring member on said vehicle inner side, and a plurality of rolling elements arranged in two rows between both said raceways in said first outer ring member and said respective raceways in both said inner ring members,

a second outer ring member connected to an outer peripheral face of said first outer ring member for rotation with said first outer ring member and having a mounting flange for fixing said first outer ring member to a vehicle body,

an end portion of said hub wheel being expanded radially outward toward an inner ring member provided to said rolling bearing to be formed into a caulked portion and

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a percentage of carbon content is adjusted to be in a range of about 0.50% to about 1.10% by weight and a percentage of sulfur content is adjusted to be 0.020% about 0.015% by weight or less in steel material of which said caulked portion is formed.

2. (Original) The vehicle-use bearing apparatus according to claim 1, wherein said rolling bearing includes a single outer ring member having two rows of raceways adjacent to each other in an axial direction, an inner ring member on a vehicle outer side and having a single raceway which pairs up with said raceway in said outer ring member on said vehicle outer side, an inner ring member on a vehicle inner side and having a single raceway which pairs up with said raceway in said outer ring member on said vehicle inner side, and a plurality of rolling elements arranged in two rows between both said raceways in said outer ring member and said respective raceways in both said inner ring members and a mounting flange for fixing said outer ring member to a vehicle body is provided to an outer peripheral face of said outer ring member.

3. (Original) The vehicle-use bearing apparatus according to claim 2, wherein said hub wheel has a central hole through which a rotary shaft is inserted for rotation with said hub wheel.

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4. (Currently Amended) A vehicle-use bearing apparatus comprising:

a hub wheel to which a wheel is mounted and which has a central hole; and

a rotary shaft formed of steel material and inserted through said central hole of said hub wheel, wherein

an end portion of said rotary shaft is expanded radially outward toward a hub wheel to be formed into a caulked portion; and

a percentage of carbon content is adjusted to be in a range of about 0.50% to about 1.10% by weight and a percentage of sulfur content is adjusted to be 0.020% about 0.015% by weight or less in steel material of which said caulked portion is formed.

5. (Original) The vehicle-use bearing according to claim 4, wherein said rotary shaft is formed of a rotary shaft integrally formed with an outer ring member of a constant velocity joint to which a driving force of an engine is transmitted.

6. (Currently Amended) The vehicle-use bearing apparatus according to claim 4, wherein a steel type of the steel material of which said caulked portion is formed is one selected from among ~~HS S40C to S58C including 0.37 % by weight to 0.61 % by weight carbon, SAE 1040 to 1095 including 0.37 % by weight to 1.03 % by weight carbon, SUJ1 to SUJ5 including 0.95 % by weight to 1.10 % by weight~~

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carbon, and SAE 52100 including 0.98 % by weight to 1.10 % by weight carbon JIS S53C to S58C including about 0.50% by weight to about 0.61% by weight carbon, SAE 1055 to 1095 including about 0.50% by weight to about 1.03% by weight carbon, SUJ1 to SUJ5 including about 0.95% by weight to about 1.10% by weight carbon.

7. (Currently Amended) A vehicle-use bearing apparatus comprising:

a rolling bearing; and

a support member for fixing an outer ring member provided to said rolling bearing to a vehicle body,

wherein said support member includes a fitted portion to be fitted over said outer ring member of said rolling bearing and a mounting flange formed on an outer peripheral face of said fitted portion to be mounted to said vehicle body,

an end portion of said fitted portion of said support member is deformed radially outward toward an end portion of said outer ring member of said rolling bearing to be formed into a caulked portion, and

a percentage of carbon content is adjusted to be in a range of about 0.50% to about 1.10% by weight and a percentage of sulfur content is adjusted to be 0.020% about 0.015% by weight or less in steel material of which said caulked portion is formed.

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8. (Currently Amended) The vehicle-use bearing apparatus according to claim 7, wherein a steel type of the steel material of which said caulked portion is formed is one selected from among ~~HS S40C to S58C including 0.37 % by weight to 0.61 % by weight carbon, SAE 1040 to 1095 including 0.37 % by weight to 1.03 % by weight carbon, SUJ1 to SUJ5 including 0.95 % by weight to 1.10% by weight carbon, and SAE 52100 including 0.98 % by weight to 1.10% by weight carbon~~ JIS S53C to S58C including about 0.50% by weight to about 0.61% by weight carbon, SAE 1055 to 1095 including about 0.50% by weight to about 1.03% by weight carbon, SUJ1 to SUJ5 including about 0.95% by weight to about 1.10% by weight carbon.

9. (New) A vehicular bearing apparatus comprising:

a rolling bearing having an outer ring and an inner ring;

a support member fixing said outer ring to a vehicle body;

a rotating member disposed to rotate with said inner ring and relative to the vehicle body;

a deformable material portion deformed to fix at least a portion of said inner ring in place and to secure said rotating member to rotate with said inner ring;

said deformable material portion is formed of a steel material having a percentage of carbon content adjusted to be in a range of about 0.50% to about 1.10%

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by weight and a percentage of sulfur content adjusted to be about 0.015% by weight or less.

10. (New) The vehicular bearing apparatus according to claim 9, wherein a steel type of the steel material is one selected from among JIS S53C to S58C including about 0.50% by weight to about 0.61% by weight carbon, SAE 1055 to 1095 including about 0.50% by weight to about 1.03% by weight carbon, SUJ1 to SUJ5 including about 0.95% by weight to about 1.10% by weight carbon.

11. (New) The vehicular bearing apparatus according to claim 10 wherein said deformable material portion is formed integrally with said rotating member.

12. (New) The vehicular bearing apparatus according to claim 11 wherein said rotating member is a hub wheel.

13. (New) The vehicular bearing apparatus according to claim 10 wherein said deformable material portion is a portion of a rotating shaft.

14. (New) The vehicular bearing apparatus according to claim 13 wherein said rotating member is a wheel hub and said rotating shaft extends through a center bore of said hub wheel.

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15. (New) The vehicular bearing apparatus according to claim 9 wherein said deformable material portion is formed integrally with said rotating member.

16. (New) The vehicular bearing apparatus according to claim 115 wherein said rotating member is a hub wheel.

17. (New) The vehicular bearing apparatus according to claim 9 wherein said deformable material portion is a portion of a rotating shaft.

18. (New) The vehicular bearing apparatus according to claim 17 wherein said rotating member is a wheel hub and said rotating shaft extends through a center bore of said hub wheel.